objects fused with eight degrees of prism, no matter whether used in one glass or in various combinations with two glasses. When the patient looked to the right or to the left the diplopia disappeared. This is characteristic of so-called divergence paralysis in distinction from diplopia due to paralysis of ocular muscles. Again, when an object was brought within two feet of the patient the diplopia disappeared. This is another characteristic feature. There are about twenty cases on record of this variety of diplopia. It has been attributed to paralysis of the divergence center, the theory being that just as there is a center for convergence (presumably in the mid-frontal lobe) there is a center for divergence which is inhibited when we converge, but called into play together with inhibition of the convergence center, when we look at distant objects.

TRACTION-SPLINT FOR MUSCULAR SHORTENING

By G. L. Walton, M.D.

Dr. Walton also showed the splint of Sir William Gowers, for use in cases of toe-drop to obviate tendency to shortening of calf muscles. The objection to the use of an elastic muscle attached to the toe and to a band about the leg is that the local pull is irksome and cannot be borne continuously. This apparatus was described and figured in a lecture in the *Clinical Journal,* March 6, 1895, and reprinted in Gowers' "Clinical Lectures," Blakiston, Philadelphia, 1895, in a lecture on the treatment of muscular contracture, but it seems not to have attracted in this country the attention which it deserves.

This apparatus is admirably adapted to remedy this condition by causing the pull to be extended over the surface of the boot. The boot consists of a single piece of sole leather "connected by a narrow part about two inches wide, behind the heel, which allows flexion of the ankle and yet affords sufficient vertical resistance to prevent any pressure on the skin at the source of the pull." The leather having been soaked in cold water is allowed to harden about a cast of the leg and foot in such a way that the narrow strip of leather forms a hinge at the heel. Lacings are inserted, and the elastic is stretched from rings attached to the back of the foot sheath and the sides of the leg piece. In the model shown (which Sir William Gowers had forwarded Dr. Walton at his request, together with directions for its manufacture) the latter was continued to the thigh and cut out for another hinge at the knee. This extension is for use in case of tendency to contracture of the hamstring muscles, in which event the elastics are extended crosswise over the knee. This appliance may be worn continuously day and night for months, and if desirable, the patient can walk about the room with the apparatus on.

BRAIN SHOWING CIRCUMSCRIBED CORTICAL ATROPHY.

By Dr. McDonald

Since Marie's views regarding aphasia have been so widely discussed and received with such marked favor in many quarters, one runs the risk of being regarded as behind the times in attempting to find special centers in the brain having for their function the focalization and preservation of concrete memory concepts; that is, concepts dependent for their complete arousal not alone upon general mental powers which—as Marie would have us believe—are inherent in the brain as a whole and cannot be further localized, but concepts which can be aroused only through the activity of special cortical areas.

As old-fashioned as these theories of localization may seem to many, Dr. McDonald confessed to a hesitancy in abandoning them entirely in favor of a chaotic agnosticism which robs us of a most powerful incentive to closer clinical study. And he had been guilty of continued temporization with these kindergarten methods in the fascinating endeavor to find in disease of particular portions of the brain the explanation for the occurrence of certain symptoms of mental disorder. Despite the alleged futility of such attempts he had, by chance perhaps, in one case at least, hit upon a correct guess as to the situation of a more or less circumscribed brain lesion.

At two medical meetings, one of which was that of the American Medico-Psychological Association, at Washington, in May, 1907, he made reference to the occurrence of localizing symptoms in so-called diffuse mental diseases such as senile dementia, and endeavored to show that such signs could probably, by close and systematic study, be found in a large majority of senile dements.

The attempt to diagnose ante mortem such areas of especially severe brain atrophy is not new and Pick has described a so-called "-left-sided temporal lobe complex" in senile dementia, a complex associated with a particularly marked atrophy of a certain area of the brain which lesion he was able correctly to locate in several cases before death.

In the two cases which Dr. McDonald had in part reported the symptoms differed from those observed in Pick's cases and briefly summarized were as follows:

Without motor or sensory symptoms there was partial auditory agnosia, partial auditory asymbolia, almost complete auditory anomia, partial visual agnosia, almost complete visual anomia, partial astereognosis (tactile agnosia) in both hands alike, stereognostic anomia, olfactory agnosia and anomia, paraphasia, agraphia for numbers. In addition there were more general symptoms of senile dementia, such as loss of impressionability but which in turn did not involve all sensory functions alike; *e. g.*, loss of visual impressionability was much greater than that for auditory experiences.

By a process of reasoning too complicated to permit of rehearsal at this time, the conclusion was reached that there is much evidence of the existence in the brain of a highly specialized center which concerns itself with the unification and concentration of related sensory experiences permitting them to appear in consciousness as concrete concepts. But instead of regarding such an area as being composed of and inclusive of all the memory fields of the various senses as does Mills, Flechsig and others, it seemed more probable that if such a center for concrete concepts existed at all it would be found separate from the centers of primary sensory experience though closely related with all of these and particularly accessible to the visual and the kineto-kinesthetic centers.

Such an arrangement was strongly suggested by the fact that, whereas with these two patients no defects in primary sensory experience could be found and no evidence of inability to associate, as coming from one source, the various impressions aroused by an object, there was nevertheless a distinct failure to arouse the memory concept of the object itself.

Thus with a match, for example, the patients could describe the shape and size, criticize the odor of the fumes, show disgust at the taste of the phosphorus, repeat the word *match,* spell it, tell that it was made of wood, withdraw from the heat and sight of the blaze and yet declare that it was an unfamiliar object, they had never seen anything like it, and moreover could neither describe its uses nor name it. There was no arousal of a concrete memory concept of the object itself despite the accurate association of its many qualities. The same was true of coins, bills and other objects.

Assuming the existence of such a center, it seemed not improbable that it lay in the left brain and in the great unknown territory lying at the junction of, and composed of, adjacent portions of the occipital, the parietal and temporal lobes where it would be especially accessible to all sensory fields and especially close to the visual and kineto-kinesthetic cortical areas. It was accordingly stated that, if autopsy should be permitted in the cases mentioned, an area of especially intense cortical atrophy would be looked for in the locality indicated. Such a lesion—a roughly circular moderately deep excavation from 2 to 2.5 cm. in diameter—is here to be seen in the brain of one of these patients and at that part of the cortex in which it was assumed that the centers for concrete concepts might be located. Of course it would be quite unscientific, rash and unwarranted to deduct great significance from the chance coincidence of a lesion situated at a point indicated in a lucky guess—for such reasoning as led to the above conclusion is not to be exalted beyond the realm of guessing.

It is meet, however, that the examination of the brain of the second case should be awaited with respectful patience though with eager interest for the details which, should they prove to agree with those here to be seen, would afford a basis for one of those tentative theories which occasionally lead the way to a more certain knowledge.

THE CYTOLOGY OF THE CEREBROSPINAL FLUID: RÉSUMÉ OF STUDIES AND DEMONSTRATIONS.

By Dr. Cotton and Dr. J. B. Ayer, Jr.

Alzheimer's method of treating the cerebro-spinal fluid, published in the *Centralblatt für Nervenheilkunde und Psychiatrie,* June 15, 1907, goes far to obviate the faults of the earlier methods. It depends for its good results upon fixation of cells in the fluid by alcohol, and the subsequent treatment of them so that they may be mounted and cut by a microtome. The method is briefly as follows: To one third volume of cerebrospinal fluid (3 c.c. were used) two thirds by volume of 96 per cent. alcohol was added in a centrifuge glass with conical bottom, and the whole thoroughly mixed. A thin white cloud of precipitated proteids will result; this is centrifugalized for one hour at high speed, when a small firm coagulated mass containing the cells will be found at the bottom. The supernatant fluid is decanted and absolute alcohol added for one hour, followed by alcohol and ether equal parts, and ether, each for one hour. Now by touching the side of the coagulum just enough to loosen it, a tap on the bottom of the glass will dislocate it, when it is immediately placed in thin celloidin. The coagulum is later mounted in thick celloidin on a block and kept indefinitely in 80 per cent. alcohol. Sections were cut uniformly